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10/812,795	03/30/2004	Masahiro Saito	CU-3674	4209
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Richard J. Streit Ladas & Parry Suite 1200 224 South Michigan Avenue Chicago, IL 60604				
			EXAMINER CUTLER, ALBERT H	
			ART UNIT 2622	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/812,795

Applicant(s)

SAITO ET AL.

Examiner

Albert H. Cutler

Art Unit

2622

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 March 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. This office action is responsive to application 10/812,795 filed on March 30, 2004. Claims 1-20 are pending in the application and have been examined by the examiner.

Information Disclosure Statement

2. The Information Disclosure Statements (IDS) mailed on March 30, 2004 and December 13, 2004 were received and have been considered by the examiner.

Priority

3. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

4. Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

5. Claim 16 is objected to because of the following informalities: Lack of clarity and precision. Claim 16 recites, "a substantially closed substantially closed space". Please amend this to read, "a substantially closed space", or something of similar nature in order to improve clarity. Appropriate correction is required.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Note that a different Akimoto et al. reference is used in the rejection of claims 6, 7, and 12 as compared to the Akimoto et al. reference used in the rejection of claims 8 and 13.

8. Claims 1 and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Takachi(US 2003/0137595).

Consider claim 1, Takachi teaches:

A compact camera module(figure 2), comprising:

a lens unit(8b) including a plurality of lens(10 and 13); and

an image pickup unit(3) including an image pickup device(4), said image pickup unit(3) being independent from the lens unit(8b) and attached to a bottom of the lens unit(8b, see figure 2, paragraphs 0029 and 0036), wherein

the image pickup device(4) is disposed in a substantially closed space in the image pickup unit(3, see figure 2, paragraph 0028).

Consider claim 9, Takachi teaches:

An image pickup unit(3) for use in conjunction with a lens unit(8b) in a compact camera module(figure 2), comprising:

a substantially closed space(A substantially closed space is formed by the package(3) and seal glass(5).); and

an image pickup device(4) disposed in the substantially closed space(see figure 2).

9. Claims 2, 10, 16, 17, and 19 are rejected under 35 U.S.C. 102(e) as being anticipated by Kim et al.(US 2003/0223008).

Consider claim 2, Kim et al. teach:

A compact camera module (figure 2) comprising a lens unit (8) including a lens (7) and a lens holder (8) holding the lens therein and an image pickup unit ("image sensor module", paragraph 0024) attached to the lens unit (see figure 2), wherein

the image pickup unit comprises:

a circuit board (1 and 3);

an image pickup device (2) on the circuit board (1 and 3);

a cover member (5) arranged on the circuit board (1 and 3) to cover the image pickup device (2); and

an optical filter (4) arranged with respect to the cover member (5) to face the image pickup device (2, see figure 2), wherein

the image pickup device (2) is disposed in a substantially closed space formed by the circuit board (1 and 3), the cover member (5), and the optical filter (4, see figure 2).

Consider claim 10, Kim et al. teach:

An image pickup unit ("image sensor module", paragraph 0024) for use in conjunction with a lens unit (8) in a compact camera module (figure 2), comprising:

a circuit board (1 and 3);

an image pickup device (2) on the circuit board (1 and 3);

a cover member (5) arranged on the circuit board to cover the image pickup device (2, see figure 2); and

an optical filter (4) arranged with respect to the cover member (5) to face the image pickup device (see figure 2), wherein

Art Unit: 2622

the image pickup device(2) is disposed in a substantially closed space formed by the circuit board(1 and 3), the cover member(5), and the optical filter(4, see figure 2).

Consider claim 16, Kim et al. teach:

A method of producing a compact camera module(figure 2, paragraphs 0024-0028), comprising the steps of:

forming an image pickup unit("image sensor module", paragraph 0024) wherein an image pickup device(2) is disposed in a substantially closed space(See figure 2. A substantially closed space is formed by the circuit board(1 and 3), the cover member(5), and the optical filter(4).); and

attaching the image pickup unit to a lens unit(8, paragraph 0024).

Consider claim 17, and as applied to claim 16 above, Kim et al. further teach:

the step of forming the image pickup unit comprises the steps of:

installing an image pickup device(2) on a circuit board(1 and 3, paragraphs 0024 and 0025);

covering the image pickup device(2) with a cover member(5) to form the substantially closed substantially closed space(see figure 2, paragraph 0024); and

arranging an optical filter(4) with respect to the cover member(5) to face the image pickup device(2, see figure 2, paragraph 0024).

Consider claim 19, Kim et al. teach:

Art Unit: 2622

A method(paragraphs 0024-0028) of producing an image pickup unit("image sensor module", paragraph 0024) for use in conjunction with a lens unit(8) in a compact camera module(figure 2), the method comprising the steps of:

installing an image pickup device(2) on a circuit board(1 and 3, paragraphs 0024 and 0025);

covering the image pickup device(2) with a cover member(5) to dispose the image pickup device(2) in a substantially closed space(see figure 2, paragraph 0024); and

arranging an optical filter(4) with respect to the cover member(5) to face the image pickup device(2, see figure 2, paragraph 0024).

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

12. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takachi in view of Akimoto et al.(US 2002/0167605).

Consider claim 6, and as applied to claim 1, Takachi does not explicitly teach that the image pickup unit is asymmetric with respect to a central line.

Akimoto et al. is similar to Takachi in that Akimoto et al. teach of an image pickup-device(2, figure 2) on a circuit board(1), and that a lens unit(3) is attached to the imaging unit(see figure 2).

However, in addition to the teachings of Takachi, Akimoto et al. teach that the image pickup unit is asymmetric with respect to a central line(see figure 2).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to make the image pickup unit taught by Takachi asymmetric with respect to a central line as taught by Akimoto et al. for the benefit of being able to comply with predetermined positions on a wiring board, and position other circuit elements within the interior of the image pickup unit without worrying about the space constraints of having the imaging device perfectly centered(Akimoto et al., paragraph 0027).

13. Claims 3-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al. in view of Burnham(US 5,233,379) in view of Shinohara et al.(US 6,738,570).

Consider claim 3, and as applied to claim 2 above, Kim et al. teach of a cover member(5, figure 2, claim 2 rationale) and a lens unit(8, figure 2, claim 2 rationale). However, Kim et al. do not explicitly teach that the cover member contains an air hole, or that the lens unit includes a ventilation channel.

Burnham is similar to Kim et al. in that Burnham teaches of a camera module(figure 1) with a lens(46), a lens holder(36), and an image capturing surface(22) opposed to the position of the lens(46, see figure 1).

However, in addition to the teachings of Kim et al., Burnham teaches that a cover member(interior wall, 56) contains an air hole("bore or opening", 54, figure 1, column 3, line 18 through column 4, line 20).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to include an air hole as taught by Burnham in the cover member taught by Kim et al. for the benefit of creating a free flow air passage in the camera module which reduces pressure and actively purges the module of dust(Burnham column 3, lines 38-59).

However, the combination of Kim et al. and Burnham does not explicitly teach that the lens unit includes a ventilation channel.

Shinohara et al. is similar to Kim et al. in that Shinohara et al. teach of a lens unit(figure 10) containing at least one lens(L1) and a lens holder(9, 9e).

However, in addition to the combination of Kim et al. and Burnham, Shinohara et al. teach that the lens unit includes a ventilation channel(See the arrows of figure 10, column 7, lines 1-56).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to include a ventilation channel as taught by Shinohara et al. in the lens unit taught by the combination of Kim et al. and Burnham for the benefit of properly ventilating air in and out of the lens unit during the screwing of the lens unit into the image pickup unit so that the pressure in the lens unit is maintained substantially equal with the external pressure, enabling the lens unit to be smoothly moved(Shinohara et al., column 1, lines 19-24).

Note: When an alternate configuration of the air hole and cover member, as shown in figure 4 of Burnham is used, the air hole is provided between cover member(12''') and lens holder(36). Because an air hole containing filters 90 and 92 is provided on the inside, as well as the outside of the lens holder(36), an air hole taught by Burnham will be in communication with the ventilation channel taught by Shinohara et al. when the fourth embodiment taught by Burnham is used. See Burnham, column 4, line 55 through column 5, line 11.

Consider claim 4, and as applied to claim 3 above, the combination of Kim et al. and Burnham does not explicitly teach the ventilation channel is formed between a wall of a cutout of the lens and the lens holder.

However, Shinohara et al. teach the ventilation channel(see the arrows on figure 10) is formed between a wall of a cutout of the lens(L1) and the lens holder(The ventilation channel denoted by the arrows on figure 10 is between a cutout of the lens(6,

Art Unit: 2622

the cutout holds the plurality of lenses, i.e. it is a cutout of the lens) and the lens holder(9, 9e). See figure 10.).

Consider claim 5, and as applied to claim 4 above, Kim et al. do not explicitly teach of an air filter. Burnham teaches of an air filter(60, 90, 92) which is disposed in the air hole(see figures 1-4). However, the combination of Kim et al. and Burnham does not explicitly teach that the ventilation channel has an air filter disposed therein.

Shinohara et al. teaches that the ventilation channel has an air filter disposed therein(column 7, lines 20-30). Shinohara et al. teach that the filter is used to keep out dust and water(column 7, lines 1-6, lines 38-56).

14. Claims 7 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al. in view of Akimoto et al.(US 2002/0167605).

Consider claim 7, and as applied to claim 2 above, Kim et al. do not explicitly teach that the image pickup unit is asymmetric with respect to a central line.

Akimoto et al. is similar to Kim et al. in that Akimoto et al. teach of an image pickup-device(2, figure 2) on a circuit board(1), and that a lens unit(3) is attached to the imaging unit(see figure 2).

However, in addition to the teachings of Kim et al., Akimoto et al. teach that the image pickup unit is asymmetric with respect to a central line(see figure 2).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to make the image pickup unit taught by Kim et al. asymmetric with respect to a central line as taught by Akimoto et al. for the benefit of being able to comply with predetermined positions on a wiring board, and position other circuit elements within the interior of the image pickup unit without worrying about the space constraints of having the imaging device perfectly centered(Akimoto et al., paragraph 0027).

Consider claim 12, and as applied to claim 10 above, Kim et al. do not explicitly teach that the image pickup unit is asymmetric with respect to a central line.

Akimoto et al. is similar to Kim et al. in that Akimoto et al. teach of an image pickup-device(2, figure 2) on a circuit board(1), and that a lens unit(3) is attached to the imaging unit(see figure 2).

However, in addition to the teachings of Kim et al., Akimoto et al. teach that the image pickup unit is asymmetric with respect to a central line(see figure 2).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to make the image pickup unit taught by Kim et al. asymmetric with respect to a central line as taught by Akimoto et al. for the benefit of being able to comply with predetermined positions on a wiring board, and position other circuit elements within the interior of the image pickup unit without worrying about the space constraints of having the imaging device perfectly centered(Akimoto et al., paragraph 0027).

15. Claims 8 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al. in view of Akimoto et al.(US 2002/0191103).

Consider claim 8, and as applied to claim 2 above, Kim et al. do not explicitly teach a grounding terminal is formed on a side surface of the circuit board, said grounding terminal including a portion extending to an upper surface of the circuit board; and the cover member is arranged to be in contact with the portion of the grounding terminal extending to the upper surface of the circuit board.

Akimoto et al. is similar to Kim et al. in that Akimoto et al. teach of an image module(figure 2) which includes a lens(32), a circuit board(1), an image sensor(2), a cover member(34), and an optical filter(35). Akimoto et al. also similarly teach that the image sensor is enclosed by the circuit board(1), cover member(34), and optical filter(35, see figure 2).

However, in addition to the teachings of Kim et al., Akimoto et al. teach:

a grounding terminal(11a, figures 2-5) is formed on a side surface of the circuit board(1), said grounding terminal(11a) including a portion extending to an upper surface of the circuit board(see figure 5, the ground terminal(11a) extends from the lower to the upper surface of the circuit board(1).); and

the cover member is arranged to be in contact with the portion of the grounding terminal(11a) extending to the upper surface of the circuit board(1, see figures 2 and 5.

The cover member(36) is in contact with the upper surface of the circuit board where the grounding terminal extends.).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to include a grounding contact member as taught by Akimoto et al., in the circuit board taught by Kim et al. for the benefit of preventing charge buildup and providing assistance in the alignment of the camera module by indicating the correct orientation to a user(Akimoto et al., paragraph's 0028 and 0029).

Consider claim 13, and as applied to claim 10 above, Kim et al. do not explicitly teach a grounding terminal is formed on a side surface of the circuit board, said grounding terminal including a portion extending to an upper surface of the circuit board; and the cover member is arranged to be in contact with the portion of the grounding terminal extending to the upper surface of the circuit board.

Akimoto et al. is similar to Kim et al. in that Akimoto et al. teach of an image module(figure 2) which includes a lens(32), a circuit board(1), an image sensor(2), a cover member(34), and an optical filter(35). Akimoto et al. also similarly teach that the image sensor is enclosed by the circuit board(1), cover member(34), and optical filter(35, see figure 2).

However, in addition to the teachings of Kim et al., Akimoto et al. teach:

a grounding terminal(11a, figures 2-5) is formed on a side surface of the circuit board(1), said grounding terminal(11a) including a portion extending to an upper surface

Art Unit: 2622

of the circuit board(see figure 5, the ground terminal(11a) extends from the lower to the upper surface of the circuit board(1).); and

the cover member is arranged to be in contact with the portion of the grounding terminal(11a) extending to the upper surface of the circuit board(1, see figures 2 and 5. The cover member(36) is in contact with the upper surface of the circuit board where the grounding terminal extends.).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to include a grounding contact member as taught by Akimoto et al., in the circuit board taught by Kim et al. for the benefit of preventing charge buildup and providing assistance in the alignment of the camera module by indicating the correct orientation to a user(Akimoto et al., paragraphs 0028 and 0029).

16. Claims 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shinohara et al. in view of Takachi.

Consider claim 14, Shinohara et al. teach:

A lens unit(figure 10) for use in conjunction with an image pickup unit in a camera module(column 4, lines 16-28), comprising:

a lens(L1) having a cutout(6, the cutout holds the plurality of lenses, i.e. it is a cutout of the lens); and

Art Unit: 2622

a lens holder(9, 9e) that holds the lens therein(see figure 10), wherein a ventilation channel(see the arrows, figure 10) is formed between a wall of the cutout and the lens holder(The ventilation channel denoted by the arrows on figure 10 is between a cutout(6) of the lens(L1) and the lens holder(9, 9e). See figure 10.).

However, Shinohara et al. do not explicitly teach that the lens unit is used in conjunction with a compact camera module.

Takachi is similar to Shinohara et al. in that Takachi teaches of a lens unit(8b, figure 2) which includes a plurality of lenses(10 and 13), and which lens holder(8b) is detachable from an imaging device(paragraph 0029).

However, in addition to Shinohara et al., Takachi teaches that the lens unit is in a compact camera module(see figure 2).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to implement the lens unit with the ventilation channel taught by Shinohara et al. in a compact camera module as taught by Takachi because the reduction in size is much required nowadays, as camera modules are demanded which fit into smaller and smaller locations(Takachi, paragraph 0007).

Consider claim 15, and as applied to claim 14 above, Shinohara et al. further teach the ventilation channel has an air filter disposed therein(column 7, lines 20-30). Shinohara et al. teach that the filter is used to keep out dust and water(column 7, lines 1-6, lines 38-56).

Art Unit: 2622

17. Claims 11, 18 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al. in view of Burnham.

Consider claim 11, and as applied to claim 10 above, Kim et al. do not explicitly teach that the cover member includes an air hole to make the substantially closed space in communication with the outside.

Burnham is similar to Kim et al. in that Burnham teaches of a camera module (figure 1) with a lens (46), a lens holder (36), and an image capturing surface (22) opposed to the position of the lens (46, see figure 1).

However, in addition to the teachings of Kim et al., Burnham teaches that a cover member (interior wall, 56) includes an air hole to make the substantially closed space in communication with the outside ("bore or opening", 54, figure 1, column 3, line 18 through column 4, line 20).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to include an air hole as taught by Burnham in the cover member taught by Kim et al. for the benefit of creating a free flow air passage in the camera module which reduces pressure and actively purges the module of dust (Burnham column 3, lines 38-59).

Consider claim 18, and as applied to claim 17 above, Kim et al. do not explicitly teach that the cover member includes an air hole to make the substantially closed space in communication with the outside.

Burnham is similar to Kim et al. in that Burnham teaches of a camera module (figure 1) with a lens (46), a lens holder (36), and an image capturing surface (22) opposed to the position of the lens (46, see figure 1).

However, in addition to the teachings of Kim et al., Burnham teaches that a cover member (interior wall, 56) includes an air hole to make the substantially closed space in communication with the outside ("bore or opening", 54, figure 1, column 3, line 18 through column 4, line 20).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to include an air hole as taught by Burnham in the cover member taught by Kim et al. for the benefit of creating a free flow air passage in the camera module which reduces pressure and actively purges the module of dust (Burnham column 3, lines 38-59).

Consider claim 20, and as applied to claim 19 above, Kim et al. do not explicitly teach that the cover member includes an air hole to make the substantially closed space in communication with the outside.

Burnham is similar to Kim et al. in that Burnham teaches of a camera module (figure 1) with a lens (46), a lens holder (36), and an image capturing surface (22) opposed to the position of the lens (46, see figure 1).

However, in addition to the teachings of Kim et al., Burnham teaches that a cover member (interior wall, 56) includes an air hole to make the substantially closed space in

Art Unit: 2622

communication with the outside("bore or opening", 54, figure 1, column 3, line 18 through column 4, line 20).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to include an air hole as taught by Burnham in the cover member taught by Kim et al. for the benefit of creating a free flow air passage in the camera module which reduces pressure and actively purges the module of dust(Burnham column 3, lines 38-59).

Conclusion

18. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Shiao(US 6,940,058) and Webster(US 6,483,101) teach of enclosed imaging modules(see figure 3 of Shiao and figure 12 of Webster). Tyler et al.(US 5,324,888) and Mahulikar et al.(US 4,897,508) teach of air holes(34 and 36 of Tyler et al., and 44 of Mahulikar et al.) for ventilation, disposed in the cover of an electronic package(figure 2 of Tyler et al., figure 4 of Mahulikar et al.).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Albert H. Cutler whose telephone number is (571)-270-1460. The examiner can normally be reached on Mon-Fri (7:30-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ngoc-Yen Vu can be reached on (571)-272-7320. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2622

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AC



NGOC-YEN VU
SUPERVISORY PATENT EXAMINER